

lis quatuor flavis notatis, profunde haud erebre punctatis; corpore subtus flavo-testaceo.

Long. $3-3\frac{1}{2}$ lin., lat. $2\frac{1}{2}-2\frac{3}{4}$ lin.

Head pitchy brown, opaque, but with no distinct punctuation; epistoma truncate in front, narrowed towards the eyes, with the front margin obscure yellow. Thorax pitchy in the middle, dirty yellow at the sides; disk with four strongly punctured shallow impressions, the sides deeply but not thickly punctured. Scutellum black, or nearly so. Elytra as long as broad, very slightly rounded at the sides, bluntly rounded at the apex, pitchy brown, the discoidal part rather darker, especially the raised parts; the margins have four large yellow spots, one on each side about the middle, and another on each side of the apex: each elytron has a small tubercle on the shoulder, and between this and the scutellum a carina turned outwards posteriorly; in the middle there is a rather strong trigonal tubercle, from the angles of which two very short carinae are directed forwards, one towards the lateral margin, and one long ridge directed backwards nearly to the apex; this ridge is raised in the middle; between this ridge and the lateral margin there are two small tubercles.

Hab. Queensland, Mackenzie River.

Brit. Mus.

BIBLIOGRAPHICAL NOTICE.

Annual Report of the United-States Geological and Geographical Survey of the Territories, embracing Colorado and parts of adjacent Territories, being a Report of Progress of the Exploration for the year 1874. By F. V. HAYDEN, United-States Geologist. 8vo. 508 pages, with numerous Plates and Maps. Washington, 1876.

THE work of the officers of the United-States Geological and Geographical Survey presents frequently features of considerable difficulty. In the sparsely populated areas of the West the parties intrusted with the duty have to be specially organized both for subsistence and scientific work, inasmuch as their labours are often conducted in territories where no assistance can be obtained from the locality surveyed. Thus the Colorado survey, conducted by Dr. Hayden, was separated into seven divisions, to each of which was assigned special duties—as the topographical and geographical section, those for the primary triangulation and photography, as well as a quartermaster's department, on which devolved the transport and supply. Each of these divisions consisted further of a complete staff of scientific observers, comprising botanists and meteorologists, as well as those more directly concerned in the actual work of surveying.

This complete and careful organization has produced the excellent results told in the valuable volume before us; and the carefulness of this work, as well as the number and excellence of the illustrations, reflects considerable credit on the department to whose energy we are indebted for this valuable addition to scientific knowledge.

Starting from Denver on the South Platte river, where the headquarters were established, the various divisions examined and mapped that portion of the territory extending, roughly speaking, from North Park to rather further south than the valleys of the Gunnison and Arkansas rivers, or between the 38° and $40^{\circ} 30'$ parallels of north latitude, and between the 105° and 108° meridians of west longitude—thus comprising the mountainous district of the North and South Park, Elk, Sawatch, and Colorado frontier ranges.

“This new area presented all the different forms of surface-erosion peculiar to a granite, sedimentary, and lava country, making it an exceedingly interesting study, both for its topography and geology. The great lava mesa at the head of the White River is cut by deep cañons that penetrate far into the plateau, dividing the mesa into what appear isolated masses, but which are all connected. One isthmus, from 3 to 12 feet in width and 125 in length, connected a plateau of several miles extent with the main mesa. The highest portion of this mass is on the east side; and from the base of the almost continuous cliffs which border it the country descends in long, timbered slopes to the broad open area of Egeria Park, lying between them and the Park range.”

It was examined. Dr. Hayden states, “in the usual manner of the survey”—a carefully coloured geological map, showing the distribution and extent of the rocks, together with numerous sections and memoranda relative to the abundance and occurrence of the economical deposits, being prepared; and then this is adapted to a careful trigonometrical survey of 4 miles to the inch, with 200-foot contours. This latter is reduced one half for publication.

Speaking generally, “the older metamorphic rocks, such as the granites, schists, &c., of probably Archæan age, in which alone the precious metals and minerals of Colorado have been found, and which form the foundations on which all the bedded rocks, sandstones, limestones, &c. of the country rest, are brought to the surface and exposed only along the folded ridges of the Park range, and in the bottoms of a few cañons in some of the southern tributaries of the White River and of the neighbouring tributaries of the Grand.” Along the northern portions of the district, and in the extreme west, the surface of the country is mainly composed of Cretaceous rocks, either horizontal or only slightly undulating. The coal, a fairly good lignite, lies in the upper, middle, and lower portions of this group, in definite horizons; but it improves in quantity and quality to the westward. It is in the south-eastern portion, however, near the Grand and Eagle rivers, that the sedimentary rocks, among which occur quantities of limestone and extensive deposits of gyp-

sum, are most folded and contorted; and this is especially well illustrated by the clever drawings that illustrate the report.

As a rule these are merely outline sketches, with but little shading; so that, though they are still most picturesque, nothing is sacrificed to mere artistic effort, but every undulation is so carefully indicated, and the lithological character even of the rocks so well shown, that the nature of the country, both topographically and geologically, can be most easily and satisfactorily studied. It must not be imagined from this that regular geological charts are neglected. On the clearly printed surveys, in which the most intricate contouring of the mountain-ranges never becomes indistinct or obscure, the boundaries of the various deposits are indicated in colours.

But even here there is an improvement on the ordinary method of manipulation. The colour is never dense; generally only one tint is used; but the different deposits are represented very legibly by cross-hatching, continuous lining, chain-dotted, and other methods; so that the clearness of the *plan* is never interfered with.

A remarkable and most complicated fold occurs in the Elk range, and is illustrated by a group of sections at page 70, and an excellent explanatory figure of the causes of the apparently confused arrangement of the strata affected. The upheaval of the area, in parts sudden and abrupt, has led to the cracking of the axis of the fold, and the falling-in and overlapping even of the upper strata; while at the extremities there appears to have been a more prominent and extensive displacement, producing such fissuring of the material as to lead to an extensive weathering and consequent exposure of the lower beds; but this has not been continuous throughout the mountain-range produced. The complicated faults so formed can be at once grasped by an examination of the effective sketch illustrative of the phenomenon. In fact the services of skilful draughtsmen are everywhere apparent. The isolated weather-worn pinnacles of the great valleys, the sombre scenery of the profound cañons, the grand picturesqueness of the mountain of the Holy Cross, on whose sides the snow-filled crevices are arranged in the form of the sacred symbol, the effects of the protection afforded by the hard bands of rock in softer materials, as in the "Monument Park," are all portrayed with effective artistic skill, and still without any apparent sacrifice of truthfulness of appearance; and the value of such sketches as a compound of section-drawing and almost a bird's-eye view is fully exemplified.

In Palæontology, with the exception of seven diagrammatic plates of plants from the Cretaceous beds, the book has no illustrations; but perhaps it is scarcely fair to expect a lengthened account of the fossils characterizing the different groups in a general geological history such as this is. The two monographs (by Leo Lesquereux) on fossils in this report deal (1) with the plants by which the age of the Tertiary lignitic formations may be determined, and (2) with the Cretaceous flora of the Dakota group, those specimens only being figured which are illustrative of the "new materials

obtained from this remarkable formation," and which comprises some rare *Araliæ*, *Sequoia*, and *Menispermities*.

Not the least interesting chapter in the book is one by Mr. W. H. Jackson, on the curious traces of ancient human occupation that are found along the cliff-sides and escarpments in the extreme south-western portion of the Territory. Grouped or singly along these slopes, some near the highest flood-level of the stream, others at considerable elevations above it, are ruins of stone buildings of various sizes and in various stages of decay. They are constructed of stones about 4 inches square by 7 and 12 inches wide, cemented with clay, and divided into rooms 8 or 10 feet square. Some were of two stories, castle-like in form, and provided with squared windows; but, except abundant fragments of coarse pottery, no other relics of these bygone races could be discovered among the ruins. Their chief peculiarity is their situation. Generally high up on the cliff-side, at the base of the more vertical portions, these buildings, often enclosing the entrances to caves and fissures, though at other times quite separated from the rock, are always difficult of access. The inhabitants had evidently much to fear from hostile tribes; and the position of the buildings, coupled with the fact that they can be at times with difficulty distinguished from the natural stone, indicates that the ancient tribes had selected this inhospitable site for the sake of security. But history tells us that even this effort was vain. Mr. Ingersoll, writing about the aboriginal races of Colorado, asserts that originally they inhabited all the country as far west as the head-waters of the San Juan, and lived peacefully, cultivating with rude implements of stone and wood the fertile valleys of the streams, where they pastured their flocks and herds. But about 1000 years ago their neighbours, the Utes, broke up these peaceful encampments. Driven by slaughter and forays, they retired to the more inaccessible fastnesses of South-west Colorado, and there dug reservoirs and built the watch-towers, of which the relics only remain. And here they stood at bay; but "their foes came, and for one long month fought and were beaten back, and returned day after day to the attack as merciless and inevitable as the tide. Meanwhile the families of the defenders were evacuating and moving south; and bravely did their protectors shield them till they were all safely a hundred miles away. The besiegers were beaten back and went away; but the narrative tells us that the hollows of the rocks were filled to the brim with the mingled blood of conquerors and conquered, and red veins of it ran down into the cañon." The Moquis of Arizona are their descendants. Even these desolate wilds tell a tale of human suffering and aggression that can unfortunately find its parallel in every nation's history.

A special Report on the Mollusca of the region, and Reports on the Topography and Geography, and a good index are also given. The completeness of the volume, and the painstaking care with which a work presenting no ordinary difficulties has been so successfully performed, reflect the highest credit both on the Government that directed its execution, and the able body of scientists to whom its carrying out was intrusted.